Revisions and Additions to Horse Creek Project Design Features as a result of Water Board consultation

Revisions shown in red, underlined text as track changes.

Project Design Feature	Description	Type of activity	Applicable Alternatives and Units (if variable)	Rationale or Applicable Standard or Guideline or Best Management Practice (BMP)
Watershed 3	Mechanized harvesting equipment will be restricted to: If Soil Texture is Loam or finer Slopes less than 45 percent. If Soil Texture is Sandy Loam or Coarser Slopes less than 35 percent. Restrict all ground-based equipment to slopes less than 35 percent in units with granitic or schist soils. Mechanized harvesting equipment will be restricted to travelling in straight up and down patterns on slopes above 35 percent. In stands where tractor skidding is used and, where practical, logs should be placed in bundles on slopes less than 35 percent. Mechanized harvesting equipment will be allowed to travel in straight up and down patterns on slopes above 35 percent for short steeper slopes regardless of texture when necessary.	Operations	Tractor Units Tractor Units Limited to 35 percent slope: 118.63 and 115.34	BMP 2.13 BMP 1.3 BMP 1.9 BMP 1.10 BMP 1.17 FSH 2409.15
Watershed 14	All ground disturbing activities within or outside of the normal operating season (NOS) between May 1 to October 31 will be implemented according to the Forest's Wet Weather Operation Standards (Klamath National Forest, 2002). Wet weather operations in riparian reserves outside of the NOS will be limited to landings, existing roads, fuels units, roadside hazard units, and site prep and planting. ~~Operate according to the Forest's Wet Weather Operation Standards (USDA Forest Service 2002).~~	Operations	All units where applicable/ all alternatives	National BMP Veg-2, R5 BMP 1-5
Watershed 18	All skyline yarding operations will require: One end suspension. Full suspension will be required for any yarding across or over streams and riparian reserves within 30 feet from the stream bank ~~where possible~~. Some end lining will be implemented on steeper slope (greater than 35 percent).	Skyline	All units where applicable/ all alternatives, with the exception of the SIA	Veg-5., R5 BMP 1-11 FSH 2409.15

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Watershed 24	Following use, all temporary roads will be hydrologically stabilized and natural runoff patterns re-established. This includes ~~removal of temporary culverts and fills at stream crossings,~~ out-sloping of road surfaces where appropriate, subsoiling where practical, seeding with native grass seed where appropriate, and proper construction of water bars. Use of certified weed free materials including straw, wood chips, or mulch may also be used for erosion control. Any modification to temporary road alignments during the implementation phase of the project (not analyzed in the planning phase) will be reviewed by an earth scientist. Achieve 80% soil cover on hydrologically connected temporary roads and re-opened decommissioned roads within riparian reserves at the end of season of use.	Temporary roads	All units where applicable/ all alternatives	BMP 2.7, National BMP Road-5. Temporary Roads, Forest Plan page 4-113, S&G MA10-51, LMP 2-3
Watershed 26	Project Riparian Reserves (RR) are established in the following manner per the Forest Plan, which defines a site tree distance as 150 feet for the Oak Knoll District. For fish-bearing streams, the RR is the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to a distance equal to the height of two site-potential trees, or 200 feet slope distance (600 feet total, including both sides of the stream), whichever is greatest. For permanently flowing non-fish-bearing streams, it is the area on each side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance (300 feet total, including both sides of the stream), whichever is greatest. For intermittent streams, the stream channel and extending to the top of the inner gorge, or extension from the edges of the stream channel to a distance equal to the height of one site potential tree, or 100 feet slope distance, whichever is greatest. For unstable lands, it is the extent of unstable and potentially unstable areas. Consistent with Forest Plan direction, riparian reserves for wetlands and springs will be defined by the edge of the feature out to a distance equal to 1 site potential tree. These riparian reserves will be flagged and avoided during salvage harvest.	Operations	All salvage harvest units where applicable/ all alternatives	Forest Plan MA 10-2
Watershed 27	Directional felling will be used to protect streambanks where hazard trees need to be mitigated for public or employee safety.	Operations	All roadside hazard tree removal, with the exception of hazards in the SIA	Forest Plan MA 10-61 and 10-59

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Watershed 28	Improvements to existing system roads in the project area will avoid over-steepened road cuts where possible, minimize sidecasting, and maintain ditches, cross drains, and any outsloped road segments.	System Road Improvements	All units where applicable/ all alternatives	Forest Plan MA 10-42, 10-45, & 10-48
Watershed 29	Refueling will not take place within Riparian Reserves except at designated landings in locations where most disconnected from water resources. A spill containment kit will be in place where refueling and servicing take place. Equipment used for refueling in Riparian Reserves will not exceed 150 gallons.	Operations	All units where applicable/ all alternatives	BMP Roads-10
Watershed 30	Skid trail erosion control work will be kept current during implementation. Erosion control and drainage of skid trails will be complete prior to shutting down operations due to wet weather or at project completion.	Skid Trails	All units where applicable/all alternatives	BMP Veg-4 and Veg-5
Watershed 31	Rock and gravel will be applied to the approaches for drafting sites if it needed to prevent stream sedimentation. All boards and plastic will be removed after use.	Water Drafting	All units where applicable/all alternatives	BMPs
Watershed 32	Areas where soil has been disturbed by project activities within Riparian Reserves must be stabilized prior to the end of the normal operation season, prior to sunset if the National Weather Service forecast is a "chance" (30%) of rain within the next 24 hours, or at the conclusion of the operations, whichever is sooner. This includes skid trials that cross swales (i.e. linear depressions perpendicular to the slope contour that do not meet definition for designation as a Riparaian Reserve). Restoration generally consists of removing excess sediment, reshaping and waterbarring former approaches, and spreading slash on the former crossing.	Operations	All units where applicable/all alternatives	National BMP Veg-2
Fuels 6	Handpiles and windrows in riparian reserves will be placed in a checkerboard pattern whenever possible (not piled directly above another). Handpiles will be less than six feet in diameter. Handpiles will be more than 30 feet away from intermittent streams and 70 feet away from perennial streams except in wildland urban interface areas where piles shall be more than 30 feet from perennial streams.	Pile construction	All alternative and units.	Forest Plan MA 10-65 & 10-68
Fuels 7	For underburning, handline construction in riparian vegetation shall be avoided and in general should be farther than 25 feet from stream channels. Handlines will be mitigated (waterbarred and covered with organic material) immediately following prescribed burning, when safe to do so.	Burning	All alternatives and units	Forest Plan MA 10-65 & 10-68

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Fisheries 1	Instream work will be implemented only between May 1 and October 1. This includes activities requiring culvert replacement or removal.	In-stream actions	~~SIA~~All alternatives and units	To prevent direct adverse effects to spawning salmonids and incubating salmonid eggs.
Fisheries 4	Draft water only at sites designated by the Forest Service. Decisions related to where water drafting occurs will be coordinated with a Forest Service fisheries biologist so that potential impacts to anadromous fish, and the thermal refugia they rely upon, are sufficiently minimized. Sites that are not likely to have rearing Coho salmon present will be prioritized for use, such as mainstem sites on the Klamath River and existing water drafting sites that are not fish-bearing. Priority will also be given to sites that involve drafting relatively warmer waters in mainstem rivers. Drafting from tributaries and colder water sources, especially in their lower reaches, will be avoided particularly during late summer and early fall (when flows are low and fish survival is dependent upon thermal refugia). Water storage facilities such as existing non-fish-bearing spring-fed drafting ponds and portable foldable tanks are encouraged. Project-related water drafting will be monitored, and shifted away from streams if their baseflows will no longer sustain drafting-related water withdrawal consistent with project design features. Additional applicable specifications: • There will be no modification or improvement of drafting sites in Coho Critical Habitat. • Water drafting by more than one truck per site shall not occur simultaneously • Water drafting from streams in the Horse Creek watershed will cease altogether if flows in the mainstem become critically low for Coho salmon survival. Critically low flows in the lower mainstem often occur in late summer/early fall due to excessive water diversions for private lands. NOAA Fisheries Water Drafting Specifications (2001) apply to the project and will be followed.	Water Drafting	Surface Waters	Prevent adverse effects to Coho salmon and other aquatic organisms.
Range 1	All known structural rangeland improvements, such as corrals, cattle guards, and spring developments, will be mapped and protected from disturbance. If damage occurs, improvements will be repaired or replaced in a timely manner.	Range Improvement Repairs		Consultation with the Water Board